



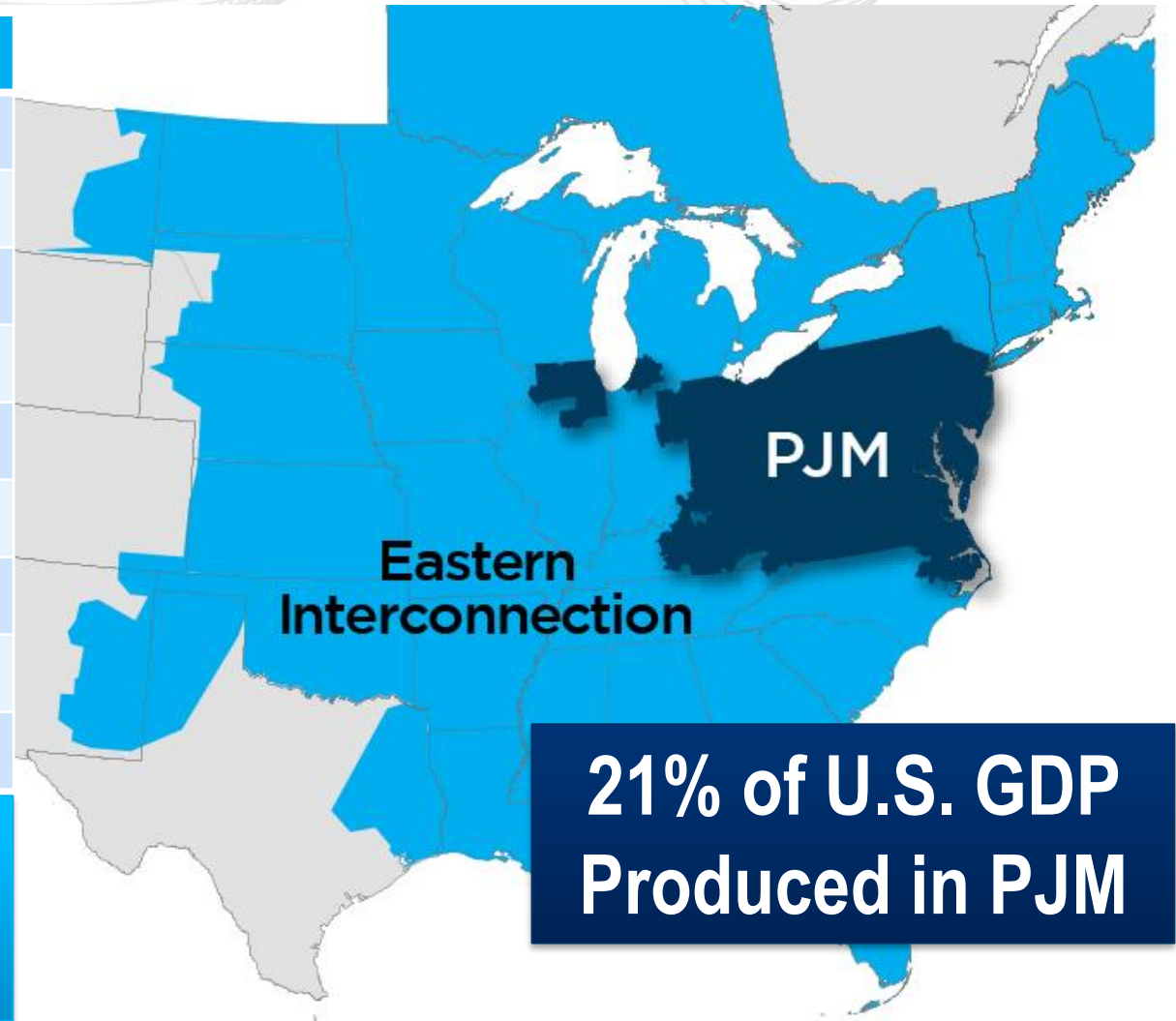
Electric Policy Session 2021 Summer Preparedness - PJM

Illinois Commerce Commission
June 2021

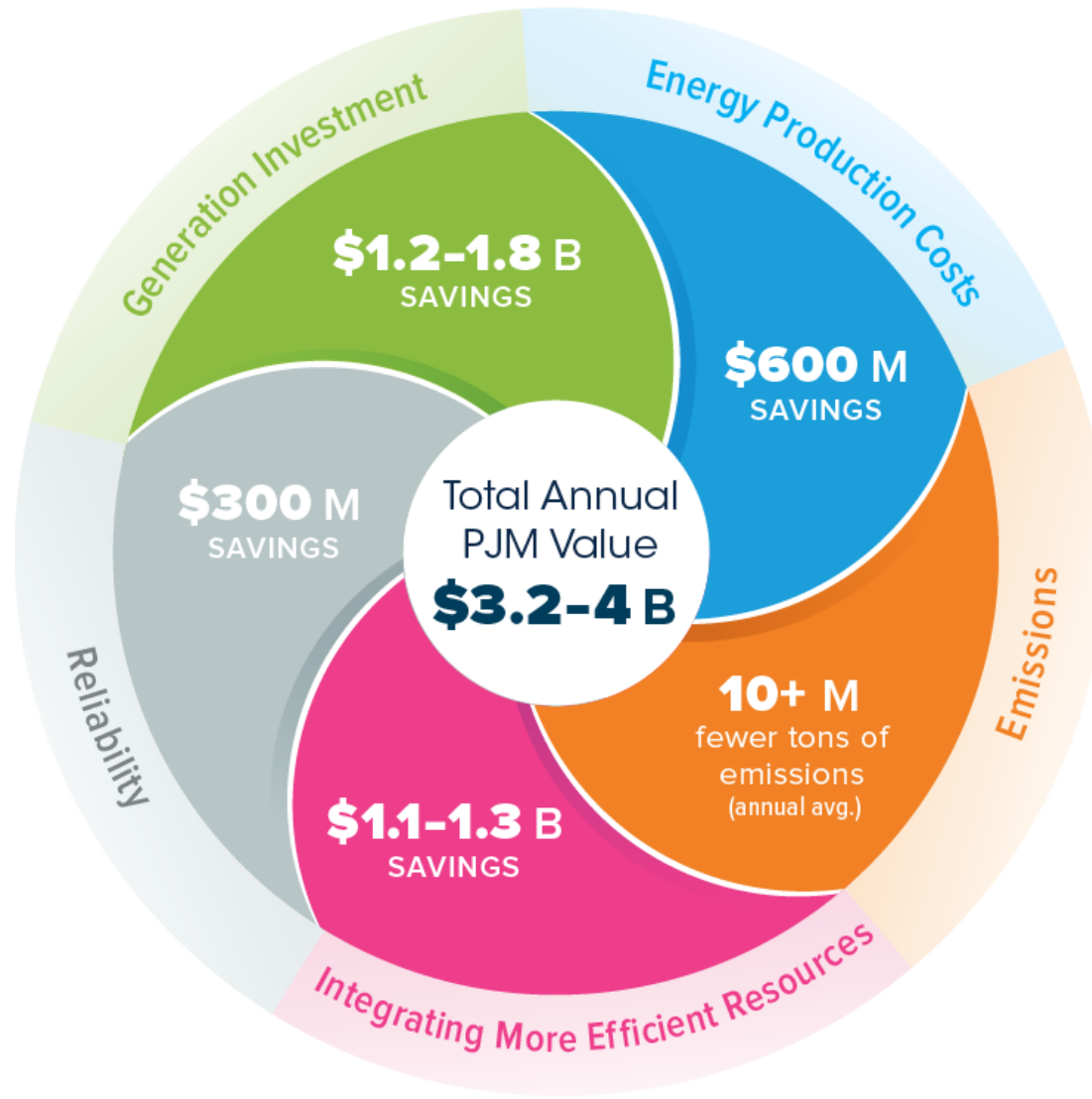
Key Statistics

Member companies	1,040+
Millions of people served	65
Peak load in megawatts	165,563
Megawatts of generating capacity	185,378
Miles of transmission lines	85,103
2019 gigawatt hours of annual energy	757,284
Generation sources	1,424
Square miles of territory	369,089
States served	13 + DC

- 26.4% of generation in Eastern Interconnection
- 25.4% of load in Eastern Interconnection
- 20% of transmission assets in Eastern Interconnection



As of 2/2021



— All numbers are estimates. —



Adequate Supply

Resources to reliably power the system and meet customer demand



Accurate Forecasting

Projection of future customer demand and system needs



Robust Transmission

Reliable delivery of power across the grid, and to customers via local distribution companies



Reliable Operations

Monitoring and dispatch of the system by trained operators

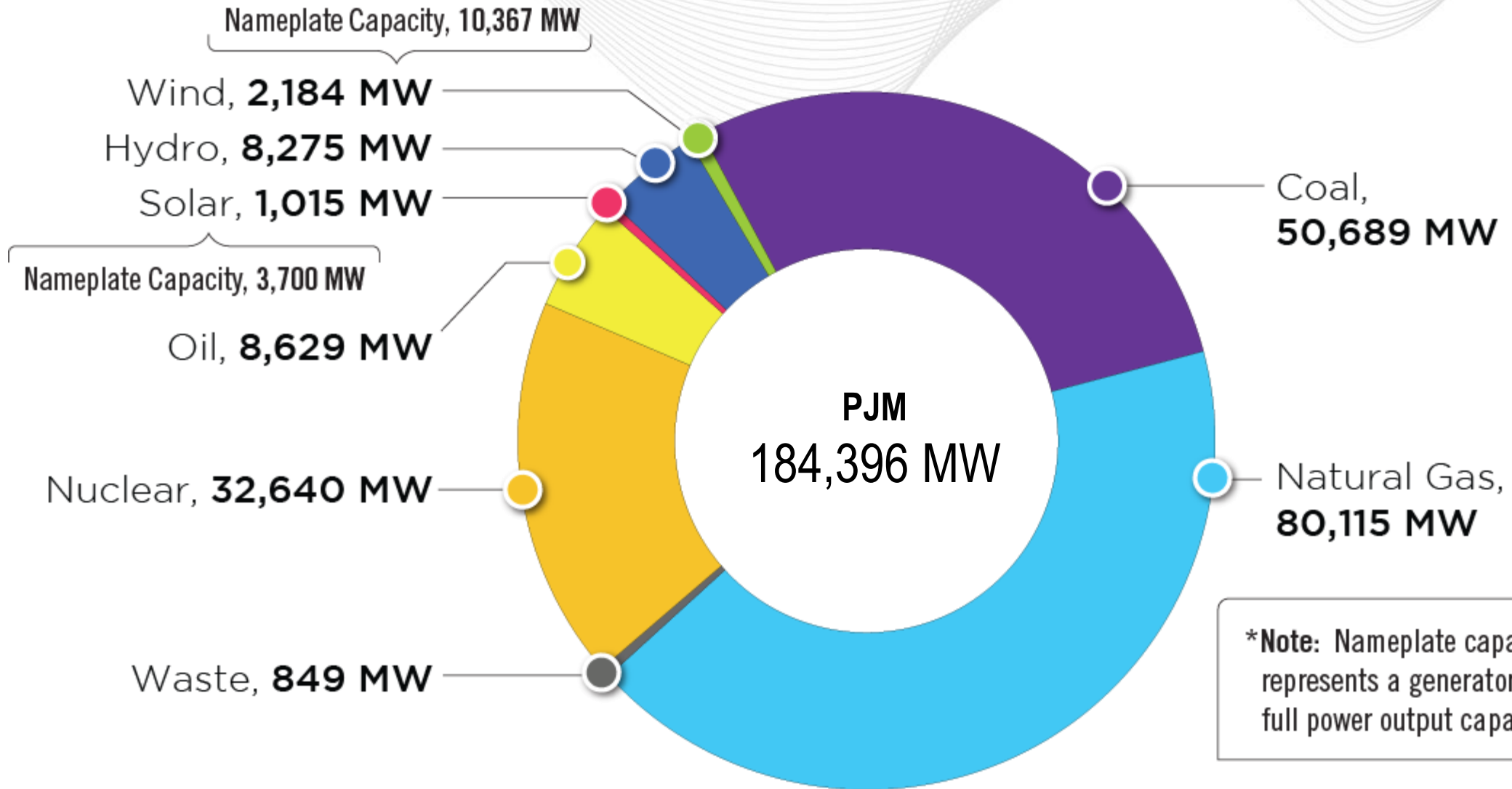


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Illinois Overview

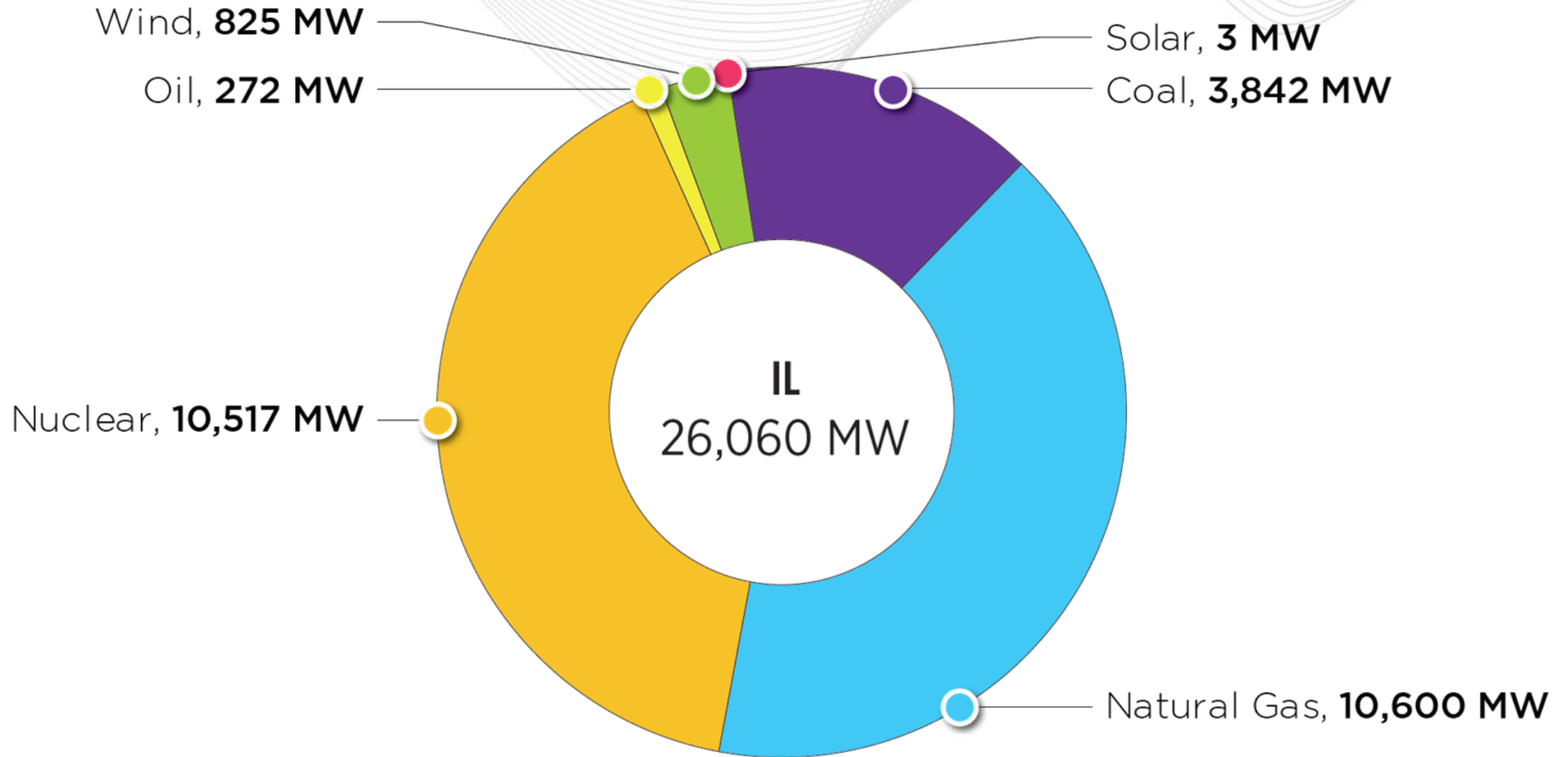
- **Existing Capacity:** Natural gas represents approximately 40.7 percent of the total installed capacity in the Illinois service territory while nuclear represents approximately 40.4 percent. In PJM natural gas and nuclear account for approximately 43.4 and 17.7 percent of total capacity.
- **Interconnection Requests:** Solar represents 41.1 percent of new interconnection requests in Illinois, while natural gas represents approximately 35.9 percent of new requests.
- **Deactivations:** 1,803.8 MW in Illinois gave notification of deactivation in 2020.
- **RTEP 2020:** Illinois' 2020 RTEP projects total approximately \$356.6 million. Approximately 90 percent of that represents supplemental projects. These investment figures only represent RTEP projects that cost at least \$5 million, and the listed network project's cost is borne by the interconnecting customer.

- **Load Forecast:** Illinois' summer peak load within the ComEd zone is projected to decrease by 0.5 percent annually over the next ten years. The overall PJM RTO projected load growth rate is 0.3 percent.
- **2022/23 Capacity Market:** No Base Residual Auction was conducted in 2020. For the most recent auction results, please see the 2018 Illinois State Infrastructure Report.
- **1/1/20 – 12/31/20 Market Performance:** Illinois's average hourly LMPs were below the PJM average hourly LMP.
- **Emissions:** 2020 carbon dioxide, sulfur dioxide, and nitrogen oxide emissions are all down from 2019.



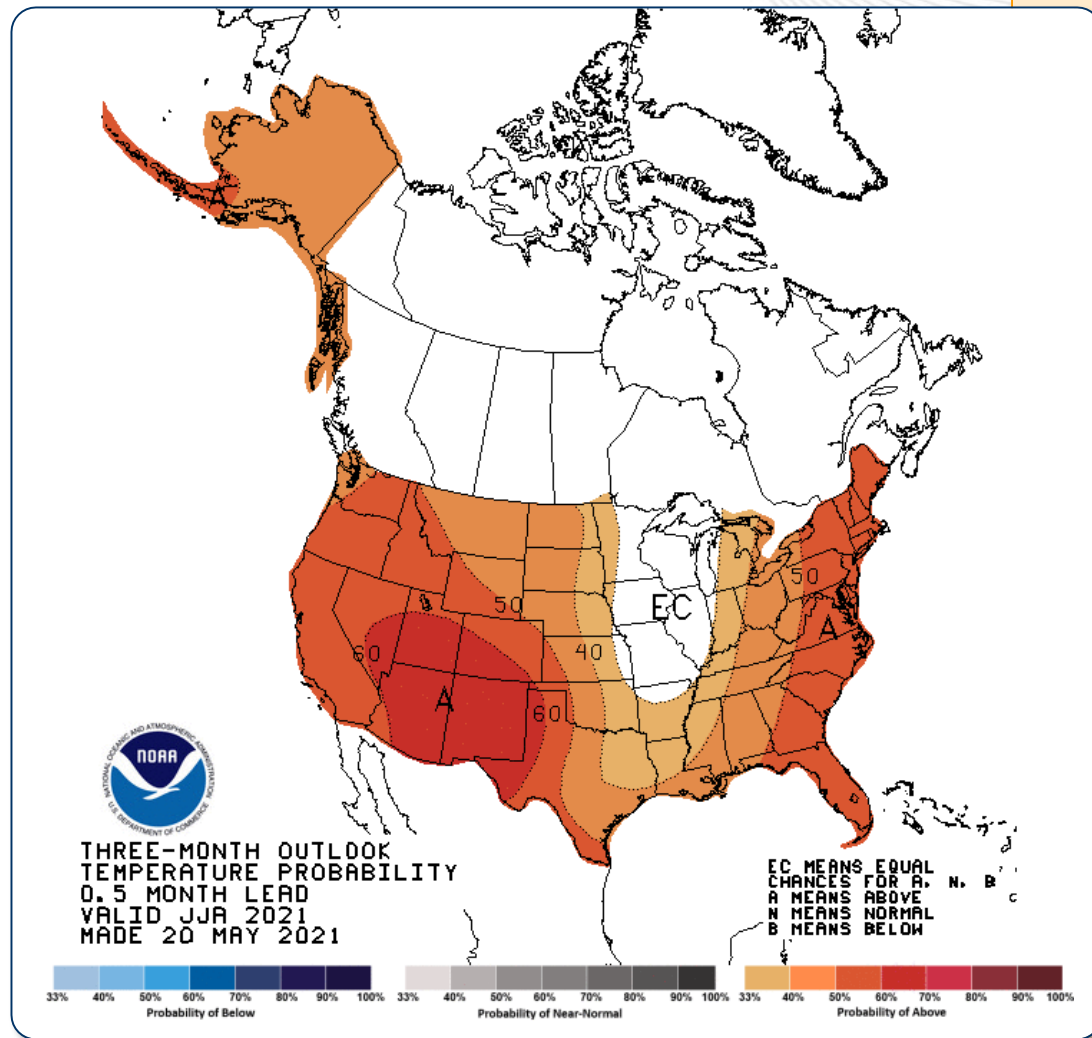
Illinois – Existing Installed Capacity

(CIRs – as of Dec. 31, 2020)

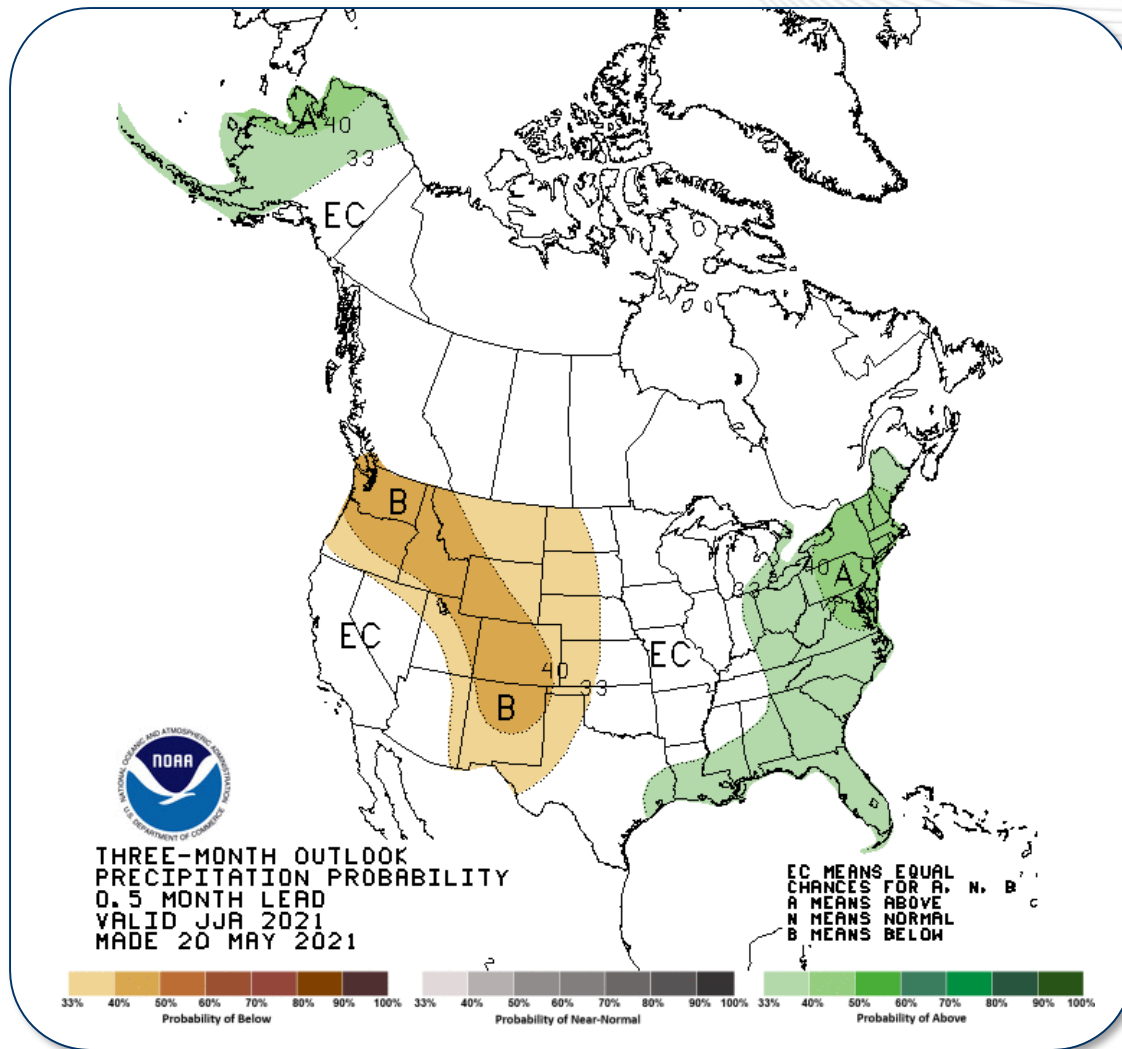


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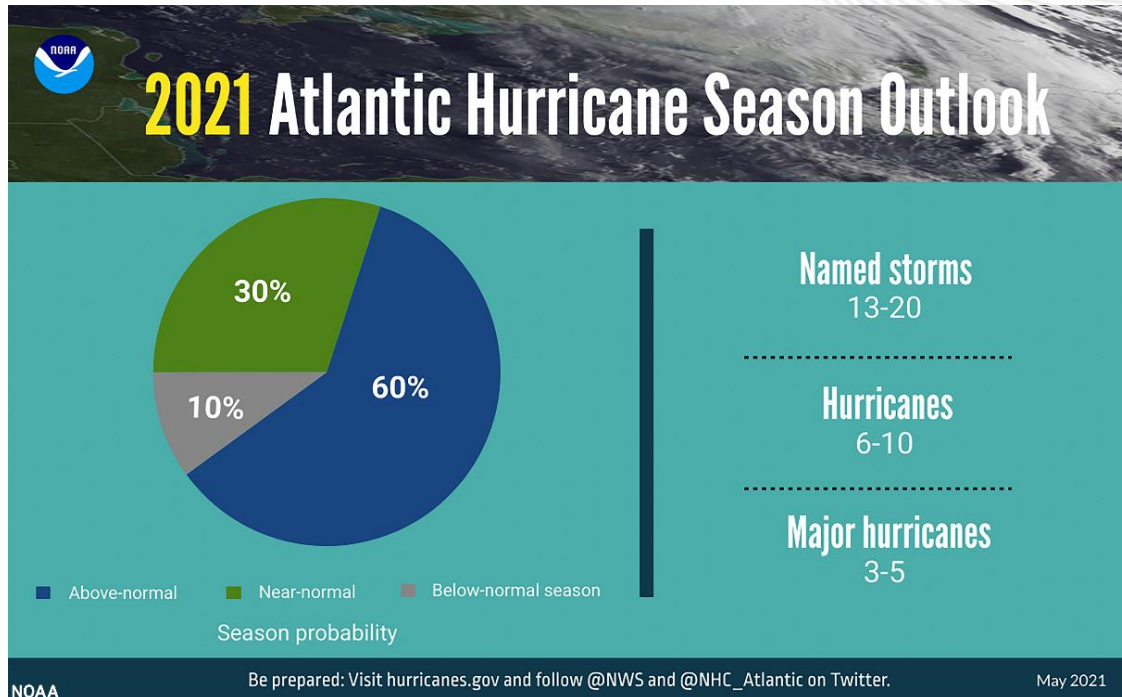
2021 Weather Outlook



- Above-normal temperatures are likely this summer, especially in the eastern half of PJM
- Forecast influenced by warm ocean waters in Atlantic and western Pacific
- Recent trends support a warmer-leaning forecast
 - Nationally, 10-year average ~11% hotter (more population-weighted CDDs) than 30-year average
 - Haven't had a below-normal summer since 2009



- May see wetter-than-normal weather along the East Coast
 - Not expecting drought conditions to develop
 - Hints at increased humidity, which impacts comfort level/AC usage
- Not necessarily indicative of tropical storm activity



- Not expecting the record-breaking year that was 2020
- Conditions favor hurricane development
 - Warm Atlantic waters
 - Low wind shear due to neutral or La Niña phase of the El Niño Southern Oscillation (ENSO)

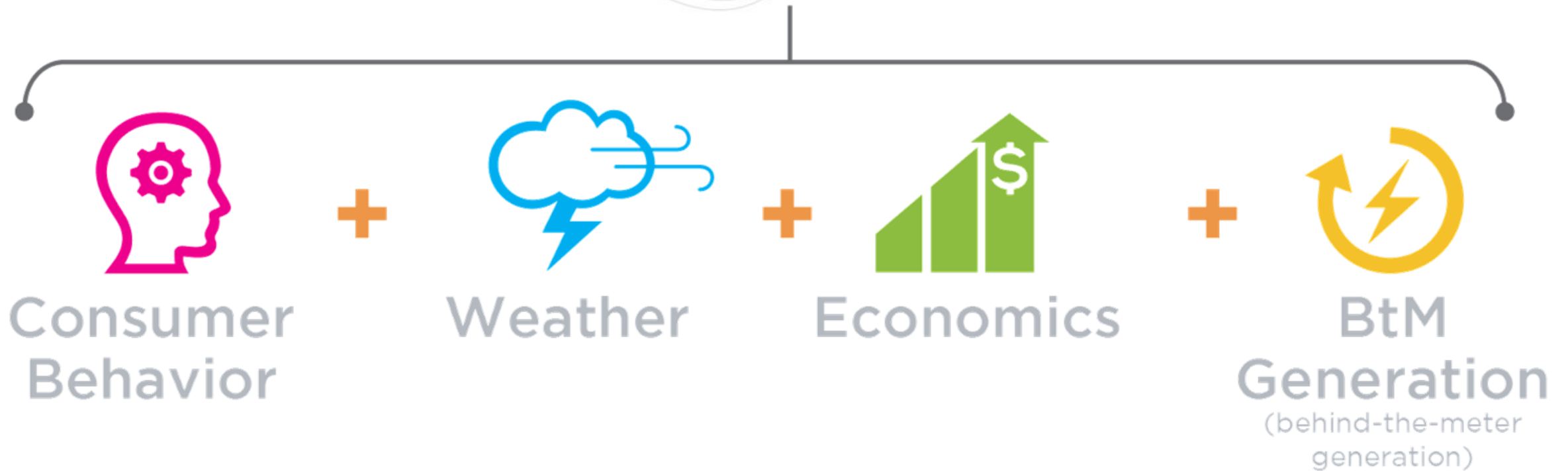
“Although NOAA scientists don’t expect this season to be as busy as last year, **it only takes one storm to devastate a community.**”
(Ben Friedman, acting NOAA administrator)



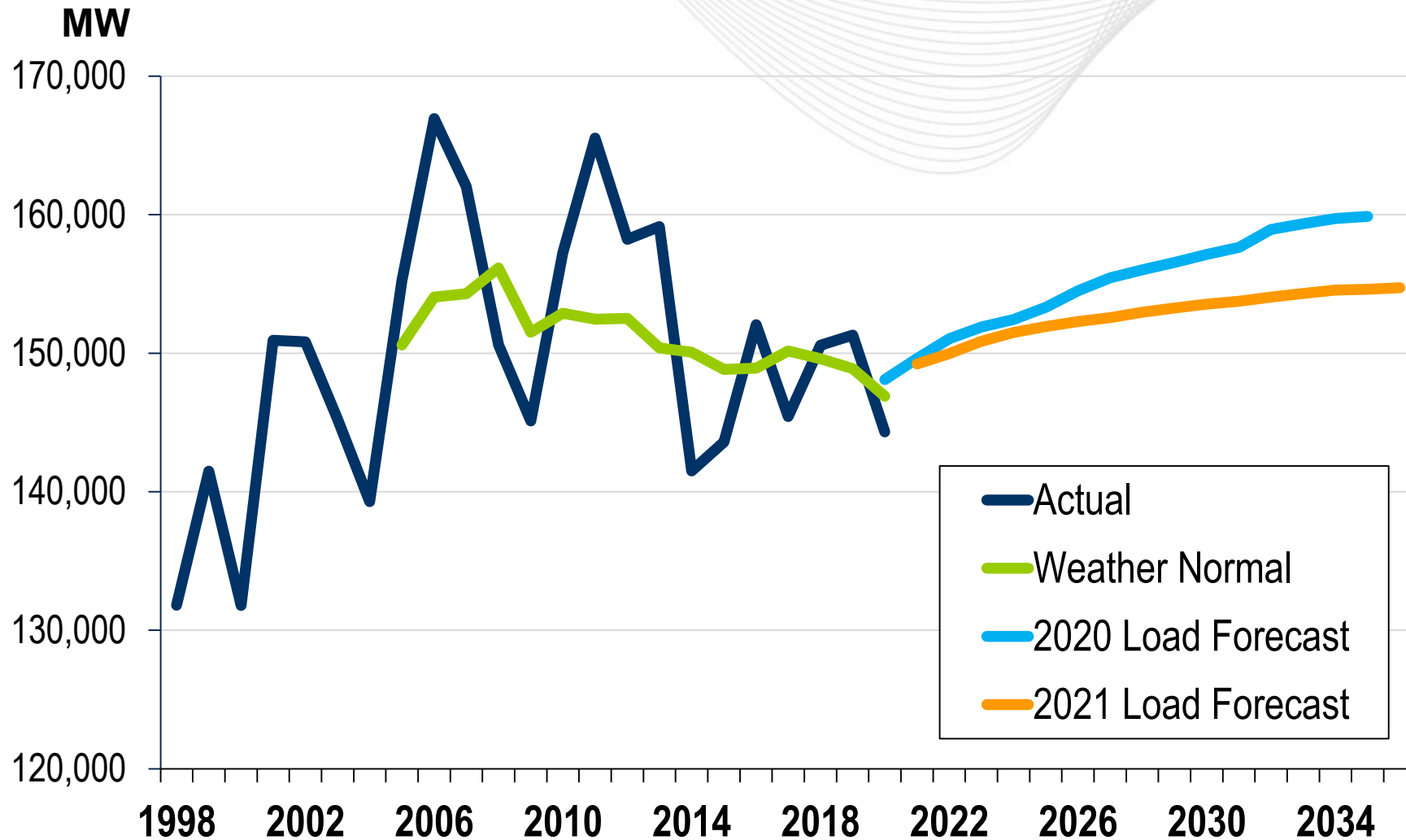
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Load Forecasts

LOAD FORECAST



2021 PJM RTO Summer Peak Forecast



15-year Annualized Growth Rate

Load Growth

2020
0.5%

2021
0.2%

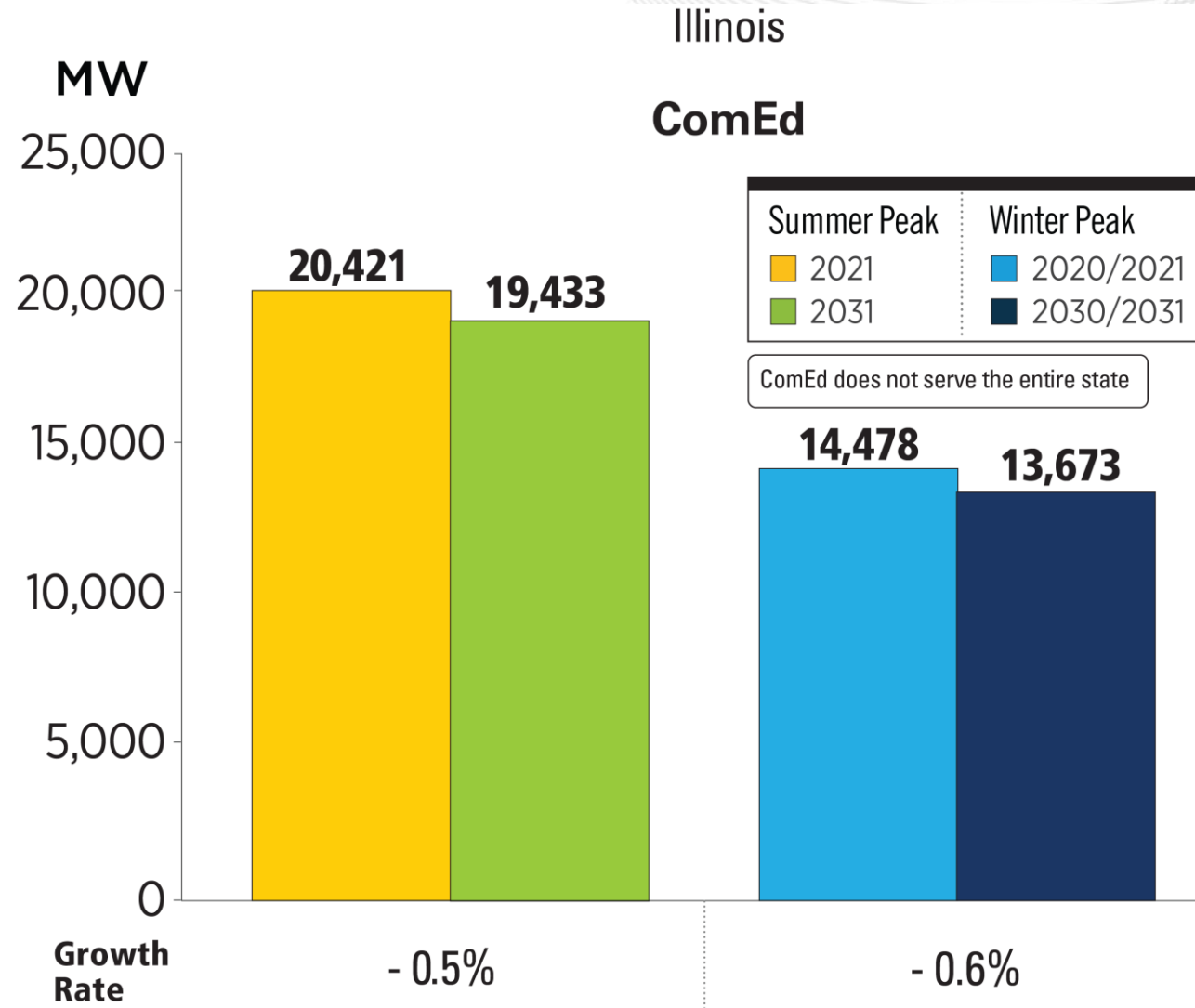
Select Year Comparisons

Load Forecast:
2021 vs. 2020

2023
0.7%↓

2025
0.9%↓

2035
3.3%↓



PJM RTO Summer Peak

2021	2031
149,223 MW	153,759 MW

Growth Rate 0.3%

PJM RTO Winter Peak

2020/2021	2030/2031
132,027 MW	135,568 MW

Growth Rate 0.2%

The summer and winter peak megawatt values reflect the estimated amount of forecasted load to be served by each transmission owner in the noted state/district. Estimated amounts were calculated based on the average share of each transmission owner's real-time summer and winter peak load in those areas over the past five years.

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2021 Operations Assessment Taskforce (OATF)

Perform a summer reliability assessment to include any additional sensitivity analysis required

Coordinate summer assessments with neighboring systems (NYISO, MISO, TVA and VACAR)

Conduct emergency procedures drill to prepare PJM staff and PJM stakeholder staff for any emergency operations

Ongoing pandemic planning, coordination and communication

Summer 2021	DEMAND			PJM Installed Capacity > 185,000 MW
	Forecast Summer ~149,000 MW	Summer Study Average 155,000 MW	Summer Study High 158,000 MW	



Relative Peaks



**2020 Summer Peak
(July 20)**

~144,000*
MW

**All-Time Summer Peak
(2006)**

165,563
MW

** Total energy use during the summer of 2020 was dampened due to impacts surrounding the COVID-19 pandemic.*

50/50 Non-Diversified Peak Load Base Case

LAS Load Forecast	Preliminary RTO Net Interchange	PJM RTO Installed Capacity	Discrete Generator Outages
155,113 MW	5,575** MW (Exporting)	185,515 MW (preliminary)	12,706 MW

*** 5,575 MW of net interchange is modeled in the OATF base case and accounts for historical and forecasted Pseudo Tie data.*

PEAK LOAD ANALYSIS

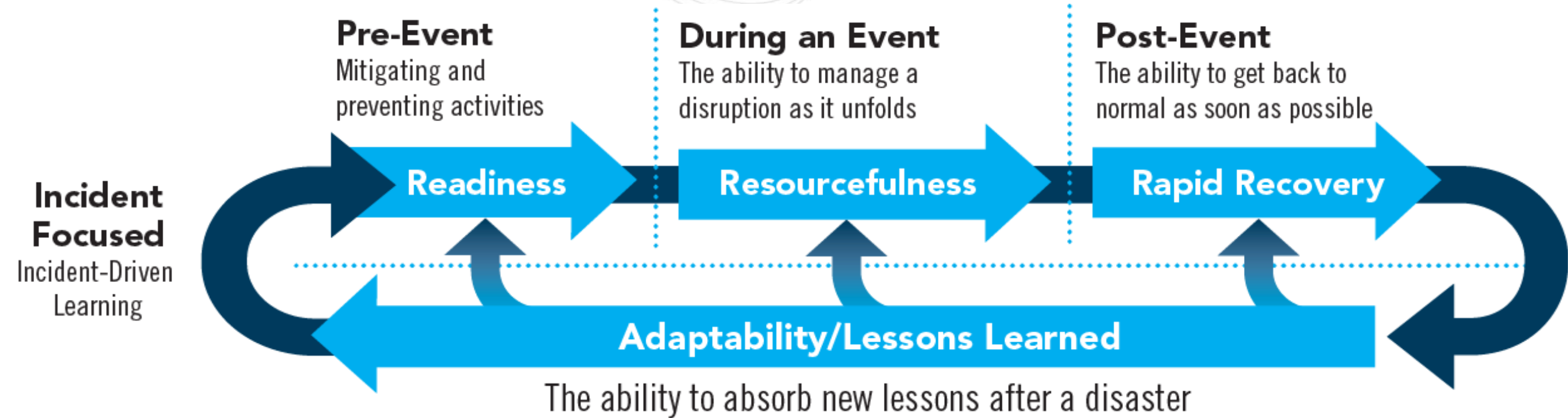
No reliability issues identified.

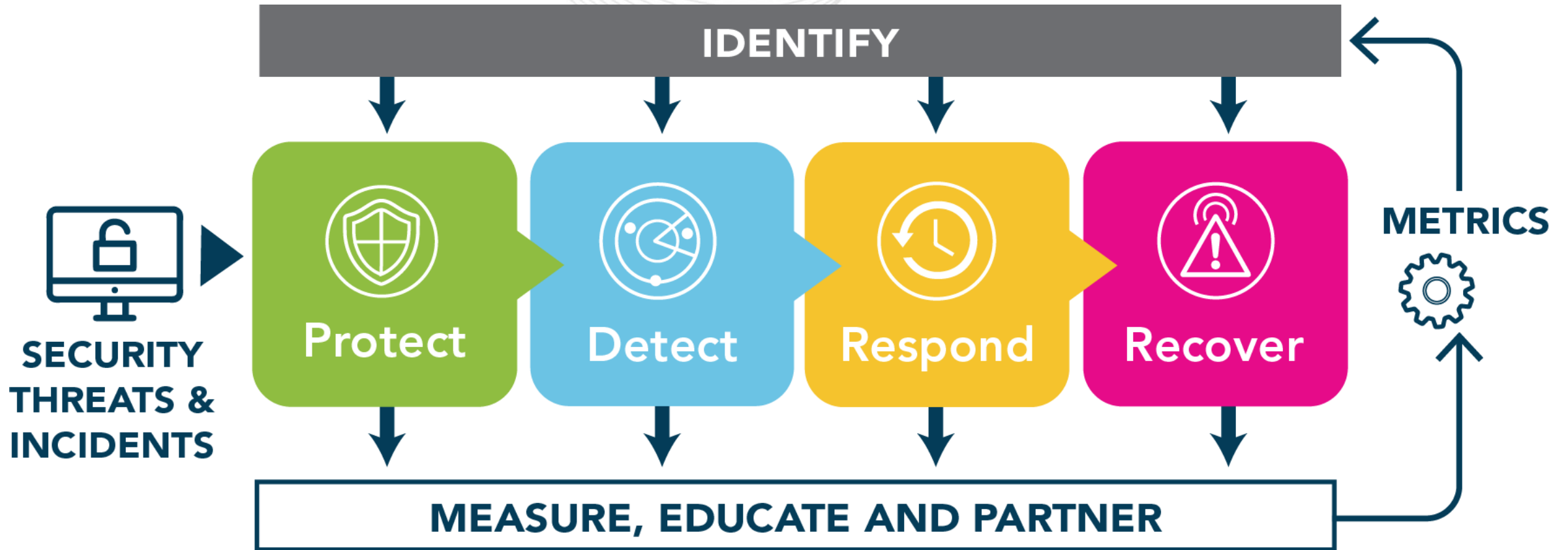
- No reliability issues identified for base case and N-1 analysis.
- Re-dispatch and switching required to control local thermal or voltage violations in some areas.
- All networked transmission voltage violations were controlled by capacitors. All other voltage violations were caused by radial load.

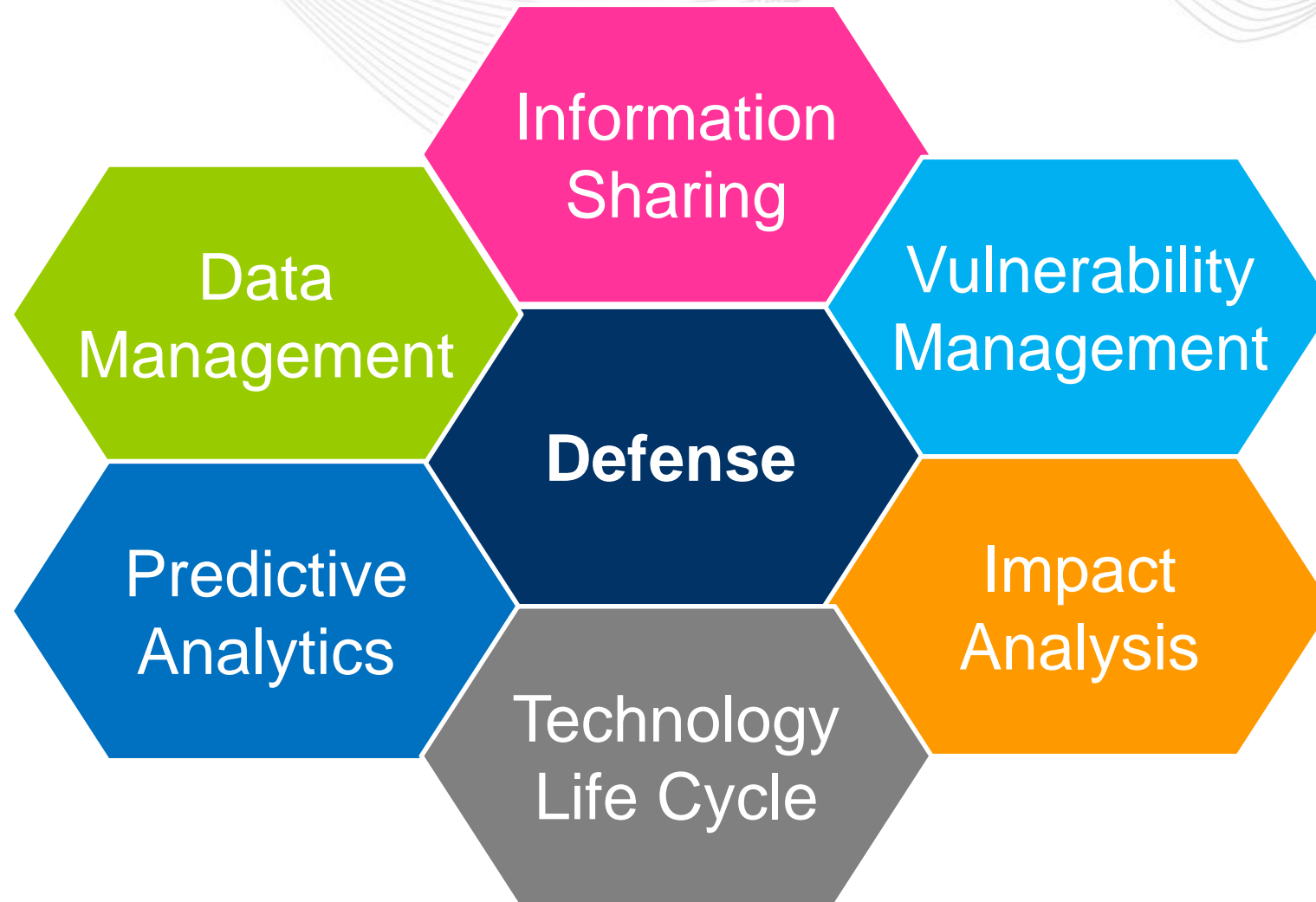
Sensitivity Studies	Impact
<ul style="list-style-type: none"> External contingencies that could impact PJM reliability 	No reliability concerns
<ul style="list-style-type: none"> N-1-1 Relay trip conditions 	No cascading outage concerns identified <i>All networked transmission overloads were controlled pre-contingency</i>
<ul style="list-style-type: none"> Max-Cred Contingency Analysis 	No reliability concerns
<ul style="list-style-type: none"> Transfer Interface Analysis 	No reliability concerns
<ul style="list-style-type: none"> BGE/PEPCO Import Capability 	No reliability concerns
<ul style="list-style-type: none"> 90/10 Load Forecast study (158,305 MW) 	No uncontrollable or unexpected issues observed at the elevated load levels

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Resilience and Cybersecurity







Prevention

- Build security into the design
- Implement traditional controls
- Improve security controls



Resilience

- Focus on incident response
- Enhance scenario planning
- Plan and drill restoration scenarios

Collaboration

- Coordinate response plans
- Develop and maintain government relationships
- Leverage industry relationships
- Share best practices

Current Status

- PJM has pushed its Return-to-Campus Plan to September.
- All stakeholder meetings will remain virtual through the end of 2021.
- The Member Training Program will continue with virtual delivery in 2021.

Public Information Available

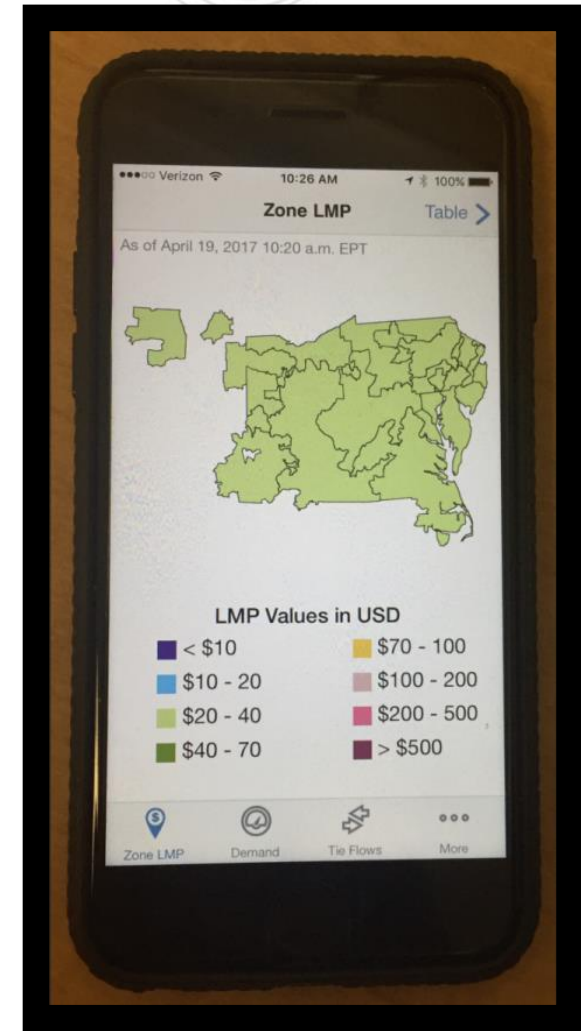
<https://www.pjm.com/committees-and-groups/pandemic-coordination.aspx>

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Additional Information

Power Up with the **PJM Now** App!

- See real-time demand
- Track power prices
- Get notifications



For More Information:

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PJM Summer Reliability Assessment



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